

What is claimed is:

1. A high temperature anemometer, comprising:
 - a pair of substrates, one of said substrates having a plurality of electrodes, the other of said substrates having a sensor cavity; and
 - 5 a sensor received in said sensor cavity, said sensor having a plurality of bond pads, wherein said bond pads contact said plurality of electrodes when said substrates are mated with one another.
- 10 2. The anemometer according to claim 1, further comprising a plurality of plug-in pins, wherein the other of said substrates has a plurality of trenches for receiving said plurality of plug-in pins, wherein said plurality of plug-in pins contact said plurality of electrodes when said substrates are mated with one another.
- 15 3. The anemometer according to claim 1, wherein said sensor has a Wheatstone bridge circuit connected to said bond pads.
4. The anemometer according to claim 3, wherein said Wheatstone bridge circuit comprises longitudinal gauges and transverse gauges.
- 20 5. The anemometer according to claim 4, wherein said sensor cavity is at an end of one of said substrates such that said sensor partially extends from said substrate, and wherein said transverse gauges are between said substrates and said longitudinal gauges extend beyond said substrates.
- 25 6. The anemometer according to claim 4, wherein said sensor comprises p-type silicon carbide, and said longitudinal and said transverse gauges comprise n-type silicon carbide.
7. The anemometer according to claim 1, wherein said sensor and said substrates are made of similar material.

8. The anemometer according to claim 7, wherein said sensor and said substrates are made of silicon carbide.
- 5 9. The anemometer according to claim 2, wherein said plurality of trenches and said sensor cavity are of substantially an equivalent depth, and wherein said plurality of plug-in pins, and said sensor with said bond pads are of substantially an equivalent thickness, wherein said thickness is greater than said depth such that said electrodes make intimate contact with said bond pads and said plurality of plug-in pins when said substrates are mated with 10 one another.
10. A sensor comprising:
 - a housing having a package cavity therethrough;
 - 15 a sensor package received in said package cavity, said sensor package having a silicon carbide cantilever beam sensor extending outwardly from said housing.
11. The sensor according to claim 10, wherein said sensor package comprises:
 - a connection substrate having a plurality of electrodes disposed on one side thereof;
 - 20 a cavity substrate having a sensor cavity for receiving said silicon carbide beam sensor, and a plurality of trenches; and
 - a plurality of pins, each received in a corresponding one of said plurality of trenches;
 - 25 said silicon carbide beam sensor having a plurality of bond pads, wherein said connection substrate and said cavity substrate are mated with one another so that said plurality of electrodes connect said plurality of pins to said plurality of bond pads.
12. The sensor according to claim 11, wherein said housing has at least one bore for receiving a fastener to secure said sensor package within said package cavity.
13. The sensor according to claim 12, further comprising:

a shim received in said package cavity and interposed between said fastener and said sensor package.

14. The sensor according to claim 13, wherein said shim has at least a coefficient of thermal expansion greater than that of said housing.
- 5
15. The sensor according to claim 14, wherein said shim and said housing are made of stainless steel.
- 10
16. The sensor according to claim 13, wherein said housing and said shim are made of dissimilar materials, and wherein said shim's coefficient of thermal expansion is at least greater than said housing's coefficient of thermal expansion.
17. A method for assembling an anemometer, comprising:
 - 15
 - providing a cantilever beam having a plurality of bond pads on one side thereof;
 - providing a first substrate and a second substrate, each said substrate being of the same material as said cantilever beam;
 - etching said first substrate with a plurality of trenches and a sensor cavity;
 - passivating both of said substrates;
 - 20
 - disposing a plurality of electrodes on said second substrate;
 - positioning said cantilever beam in said sensor cavity;
 - positioning a plug-in pin in each of said trenches; and
 - mating said first substrate with said second substrate so that said plug-in pins and said bond pads are in intimate contact with said plurality of electrodes.
- 25
18. The method according to claim 17, further comprising:
 - providing a housing having a lengthwise package cavity therethrough and at least one bore that extends into said package cavity;
 - positioning said mated substrates into said package cavity; and
 - inserting a fastener into said bore to secure said mated substrates in said housing.

19. The method according to claim 18, further comprising:
placing a shim along with said mated substrates in said package cavity, such that
said shim is between said mated substrates and said fastener.

5

20. The method according to claim 19, wherein said cantilever beam extends outwardly from
one end of said housing.

21. The method according to claim 20, further comprising:
installing said housing into an engine wall such that only said cantilever beam
extends beyond said engine wall.

10

22. The method according to claim 21, further comprising:
connecting diagnostic equipment to said plurality of plug-in pins.